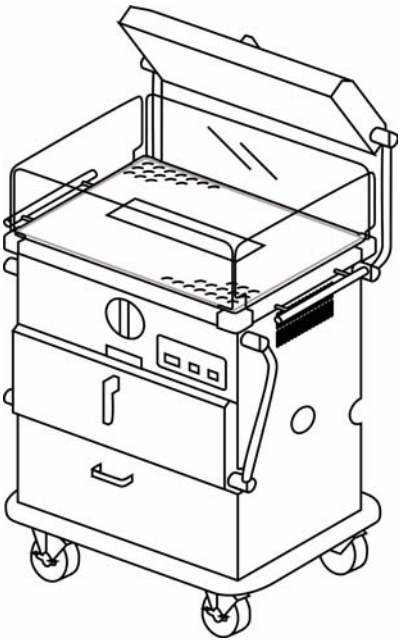
OLYMPIC MEDICAL



Instruction Manual

OLYMPIC BILI-BASSINET™

CAUTION Read and be familiar with this manual before installing, operating, or servicing this device. To ensure operator, technician, and patient safety, use only as specified in this manual.

58110-IMA-EN1129P

OLYMPIC MEDICAL
5900 First Ave S
Seattle, WA 98108 USA

Toll-free: 1-800-426-0353 (US/Canada)
Phone: 206-767-3500 (worldwide)
Fax: 206-762-4200
Web: www.OlympicMedical.com

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Contents

Section 1 **Overview** 1-1

Conventions 1-1

Symbols 1-2

Intended Use 1-3

Description 1-3

Control Panel 1-3

Accessories 1-4

Irradiance 1-5

Section 2 **Assembly** 2-1

Assembling the Bili-Bassinet 2-1

Testing the Bili-Bassinet 2-3

Section 3 **Operation** 3-1

Operating the Bili-Bassinet 3-2

Using the Phototherapy Pad 3-3

Using the Overhead Lights 3-3

Positioning the Transparent Sides 3-4

Tilting the Mattress 3-5

Using the Bili-Bassinet with a Radiant Warmer 3-6

Measuring Irradiance 3-6

Section 4 **Maintenance** 4-1

Cleaning the Bili-Bassinet 4-1

Cleaning the Phototherapy Pad Fixture 4-2

Inspecting the Bili-Bassinet 4-3

Replacing the Bulbs 4-3

Bulb Timers 4-3

Replacing the Overhead Bulbs 4-4

Replacing the Mattress Pad Bulbs 4-4

Section 5 **Troubleshooting** 5-1

Technical Support 5-2

Section 6 **Service** 6-1

Repair Policy 6-1

Repair Procedures 6-2

Replacing the Fuses 6-2

Replacing the Switches 6-5
Replacing the Bulb Holder 6-7
Bulb Holder in the Overhead Lights 6-7
Bulb Holder in the Phototherapy Pad 6-9
Replacing the Fan 6-10
Testing the Thermostat 6-12
Resetting the Thermostat 6-13
Replacing the Thermostat 6-14
Replacing the Ballast 6-16
Returning for Service 6-19

Section 7 Replacement Parts 7-1

Ordering Information 7-1
Parts and Accessories 7-1

Section 8 Specifications 8-1

Electromagnetic Specifications – Manufacturer's Declaration 8-3
Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Bili-Bassinet 8-5

Appendix A Drawings and Schematics A-1

Section

1

Overview

This manual provides the necessary information to install, maintain, and service the Olympic Bili-Bassinet™. The operating instructions in this manual are intended for use under the direct supervision of a licensed medical practitioner. The installation and service instructions in this manual are intended for use by qualified service technicians.

Conventions

The following conventions are used in this manual.

Table 1.1 Conventions

Convention	Description
NOTE	Notes provide additional information to clarify a point in the text.
CAUTION	Cautions indicate situations that, if not avoided, could result in minor to moderate injury to the patient or operator, or damage to the equipment.
WARNING	Warnings indicate situations that, if not avoided, could result in serious injury or death to the patient or operator.
BUTTON	This character style represents buttons and controls that the user can touch or press.

Symbols

The following symbols are located on the Olympic Bili-Bassinet and its packaging.

Table 1.2 Symbols

Symbol	Description
	Alternating current (ac) voltage
	Atmospheric pressure
	Caution, hot surfaces
	Caution, read instructions
	Consult instruction manual
	Do not reuse; single use only
	Electrical shock hazard
	Eye protection to be worn by infants
	Fuse
	Humidity, condensing
L	Line (hot conductor)

Symbol	Description
	Mains power OFF
I	Mains power ON
N	Neutral (neutral conductor)
	Nonionizing electromagnetic radiation
	Protective earth (ground
	Reference number
	Shipping
	Storage
	Temperature limitations
	Type B applied part

Intended Use

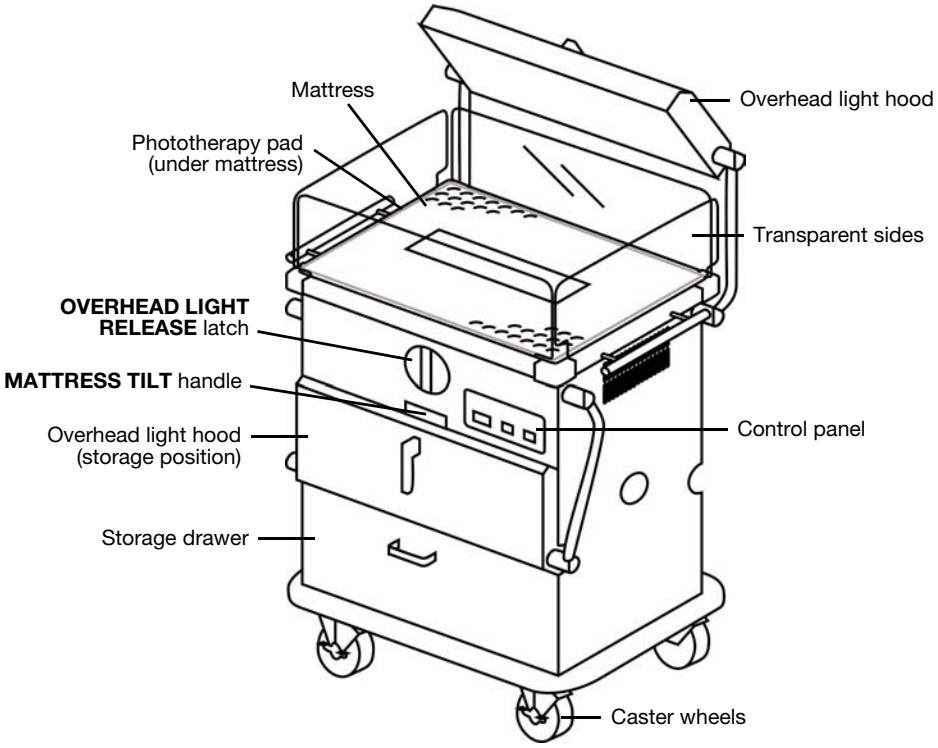
The Olympic Bili-Bassinet is intended to provide one- or two-sided therapeutic irradiance to treat neonatal hyperbilirubinemia.

Description

The Bili-Bassinet is a phototherapy bassinet with a built-in pad and two overhead lights that can be used individually or together to provide phototherapy treatment.

When not needed for phototherapy treatment, turn off the lights and use the Bili-Bassinet as a regular bassinet.

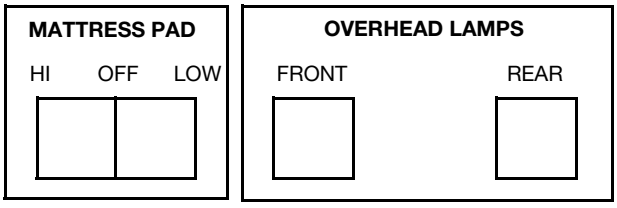
Figure 1.1 Olympic Bili-Bassinet



Control Panel

The control panel provides user control of the phototherapy pad (high, low, or off) and overhead lamps (front and rear, on or off).

Figure 1.2 Control panel



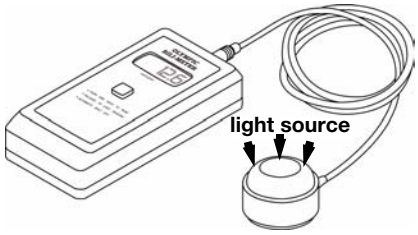
Accessories

Olympic Medical offers the following items that are compatible for use with the Bili-Bassinet:

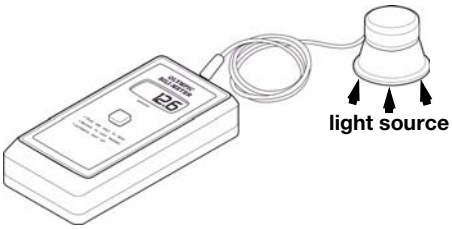
- Olympic Bili-Meter™, which measures the irradiance output of phototherapy.
- Olympic Bili-Mask™, which protects the patient's eyes during phototherapy treatment.

To order these items, see page 7-1.

Figure 1.3 Bili-Meter

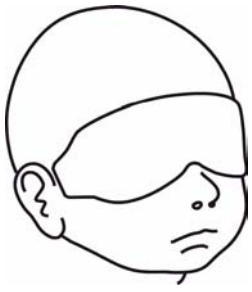


Olympic Bili-Meter With Type B-22 Sensor for measuring overhead irradiance



Olympic Bili-Meter With Type F-22 Sensor for measuring irradiance from below

Figure 1.4 Bili-Mask styles



"Quick-Stick"

"Standard"

"Easy-On"

Irradiance

The therapeutic irradiance of phototherapy lights is measured with radiometers, instruments with optical filters that pass only selected portions of the blue-green action spectrum of bilirubin. Irradiance (radiant power) is expressed in units of microwatts per square centimeter per nanometer ($\mu W/cm^2/nm$).

The Olympic Bili-Meter[1]—the radiometer widely used in nurseries—measures irradiance from 425 to 475 nanometers (nm). Standard 60601-2-50 of the International Electrotechnical Commission (IEC) also requires that irradiance from 400 to 550 nm be measured. The following tables show this data.

NOTE The differences between the Olympic Bili-Meter and the IEC measurements do not represent a difference in the ***total*** irradiance output of the same bulbs. The difference results from ***averaging*** the irradiance of the same bulbs over wavelength bands of different widths. The Olympic Bili-Meter measures from 425 to 475 nm — nearly all of the irradiance of blue bulbs occur in this 50-nm band. The IEC measures irradiance from 400 to 550 nm — a 150-nm band; therefore, the ***average irradiance per nanometer*** of the IEC measurement will differ from the Bili-Meter measurement.

The irradiance data for the Olympic Bili-Bassinet, below, is shown for Olympic Blue (Type OB) fluorescent bulbs at varying distances. Average irradiance is measured over an effective surface area of 12 x 24 in. (30 x 60 cm). Maximum irradiance is measured at the center of the area.

Table 1.3 Average irradiance using the Olympic Bili-Meter (425–475 nm)

	All Overhead Bulbs	Mattress LOW	Mattress HIGH
Olympic Blue (Type OB) bulbs	16.9	23.7	36.6

Table 1.4 Maximum irradiance using the Olympic Bili-Meter (425–475 nm)

	All Overhead Bulbs	Mattress LOW	Mattress HIGH
Olympic Blue (Type OB) bulbs	21.6	32.2	46.5

Table 1.5 Average irradiance using the IEC Standard (400–550 nm)

	All Overhead Bulbs	Mattress LOW	Mattress HIGH
Olympic Blue (Type OB) bulbs	9.3	12.1	18.1

Table 1.6 Maximum irradiance using the IEC Standard (400–550 nm)

	All Overhead Bulbs	Mattress LOW	Mattress HIGH
Olympic Blue (Type OB) bulbs	11.9	15.7	21.9

1. Each Olympic Bili-Meter is certified to be calibrated traceable to the United States National Institute of Standards and Technology (NIST).

Figure 1.5 Response, Olympic Bili-Meter

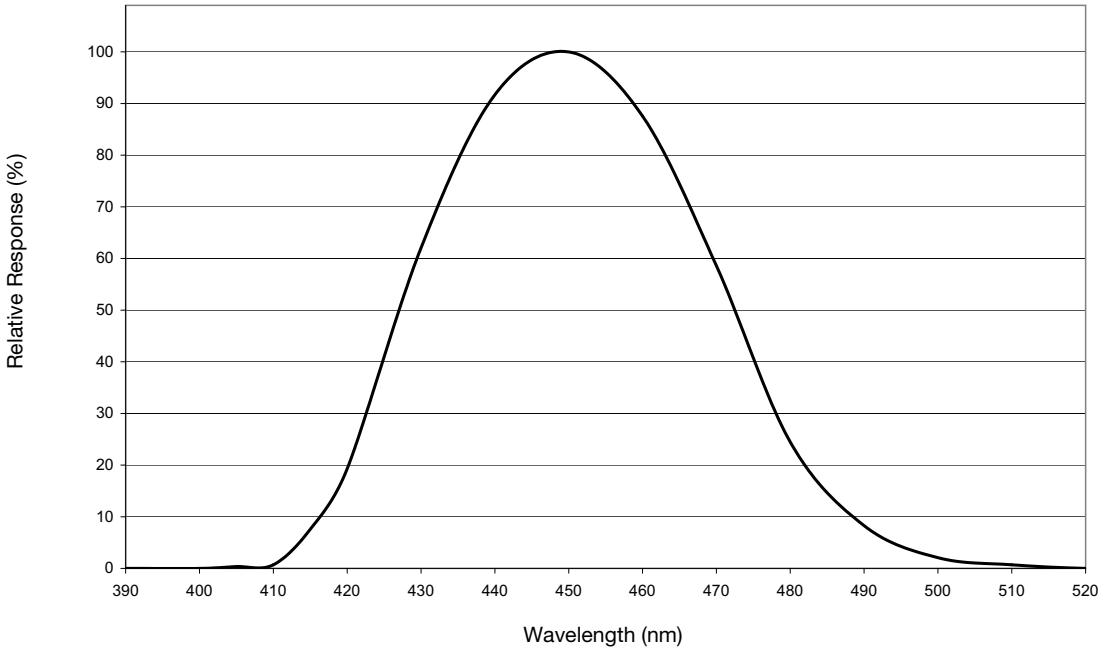


Figure 1.6 Spectral energy distribution

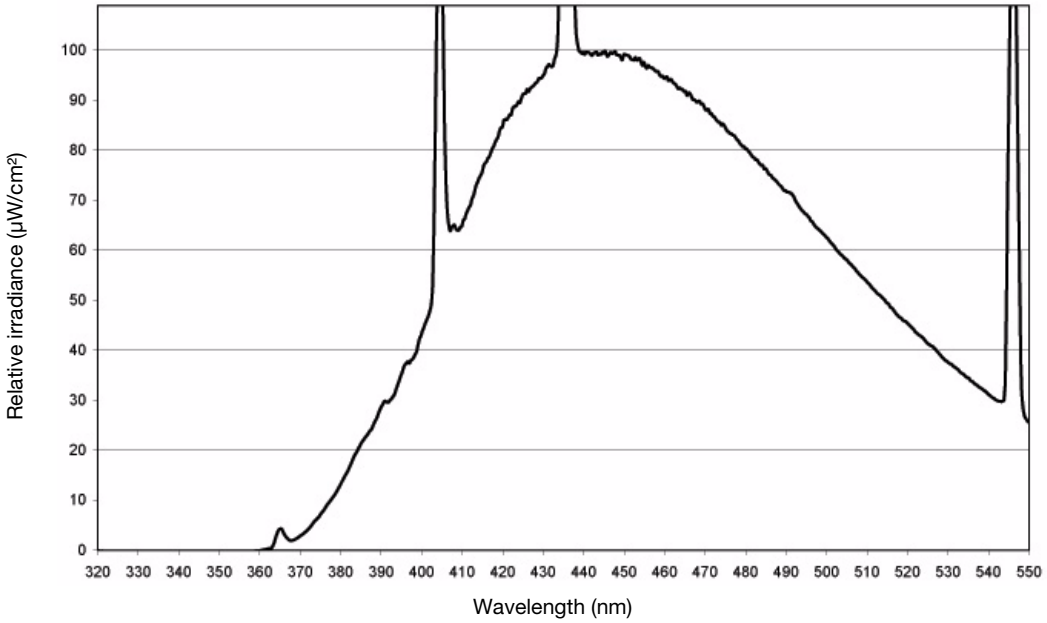


Figure 1.7 Effective surface area, Olympic Bili-Bassinet top view

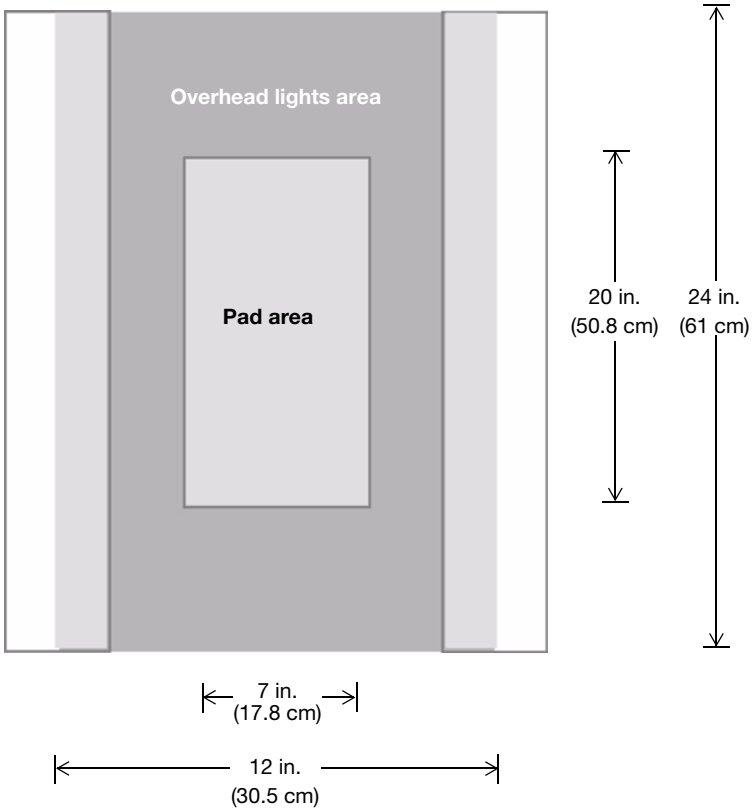
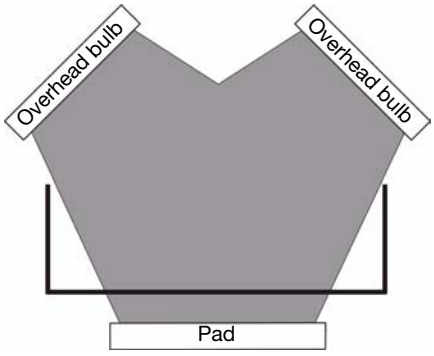


Figure 1.8 Effective surface area, Olympic Bili-Bassinet side view



Section

2

Assembly

> **CAUTION**
> - Only qualified technicians should assemble this device.
> - Read and be familiar with this instruction manual before assembling this device.

Assembling the Bili-Bassinet

The Bili-Bassinet is shipped with the following items:

- Bili-Bassinet
- Transparent mattress
- Olympic Blue bulbs (x12)

Required Items:

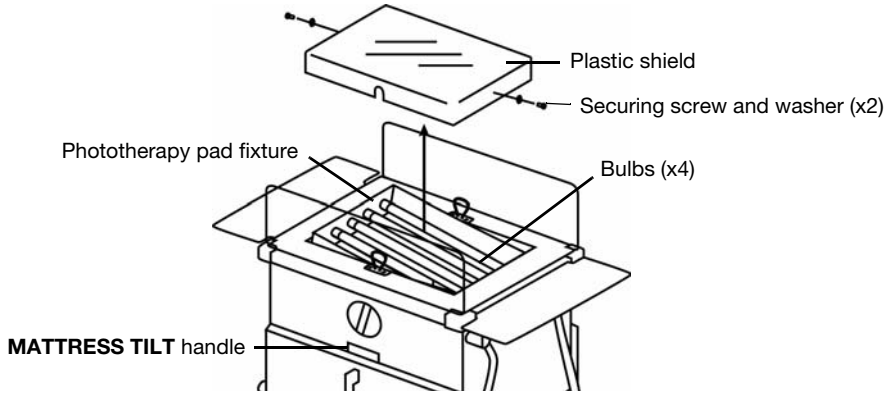
- Parts and assemblies, as listed above
- Disposable mattress covers (part no. 58106)
- Phillips-head screwdriver

> **NOTE** Only use Olympic Blue (Type OB) bulbs in the phototherapy pad and overhead lights of the Bili-Bassinet.

To assemble the Bili-Bassinet:

1. Remove the Bili-Bassinet and its components from the shipping crate.
2. Install the bulbs into the phototherapy pad:
   a. Pull the **MATTRESS TILT** handle, then tilt the phototherapy pad.
   b. Remove the screw and washer on the end of the pad fixture.
   c. Tilt the phototherapy pad the opposite direction and remove the screw and washer on the other end of the pad fixture.
   d. Lift off the plastic shield (see Figure 2.1 on page 2-2).
   e. Install the four bulbs into the sockets, ensuring that the bulb pins slide into the bulb-holder slots. Rotate each bulb to seat it in position.
   f. Re-install the plastic shield, screws, and washers, and place the mattress in position.

Figure 2.1 Installing the phototherapy pad bulbs



CAUTION

- The mattress must be in place during phototherapy treatment.
- Use only with an Olympic Mattress. Do not use a water mattress with the Bili-Bassinet.
- Always use a disposable cover to prevent cross-contamination.

3 Place the mattress:

- **a** Slip a disposable cover over the top of the mattress, tucking the mattress ends into the cover pockets.
- **b** Place the mattress in the center of the bassinet.

4 Install the bulbs in the overhead light hoods:

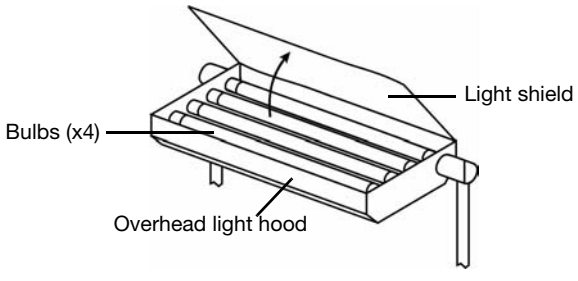
- **a** Raise the overhead light and rotate the light hood until the bulbs face up (see Figure 2.2).
- **b** Remove the light shield: remove the two screws and washers, pull the shield toward the bassinet, then lift the shield up, out of the light hood fixture (see Figure 2.2).
- **c** Install four bulbs into the sockets, ensuring that the bulb pins slide into the bulb-holder slots.
- **d** Rotate each bulb to seat it in position.
- **e** Install the light shield by laying it on the light hood and securing the screws.
- **f** Install the light shield: lay the shield on the light hood fixture, then place the washers and tighten the two screws.

CAUTION

Keep the safety shield in place during phototherapy to protect the patient from ultraviolet radiation and broken bulbs.

5 Test the device for proper operation (see page 2-3).

Figure 2.2 Installing the overhead bulbs



Testing the Bili-Bassinet

Perform the test procedure to ensure the Bili-Bassinet is working properly after performing assembly and service procedures.

To test the Bili-Bassinet:

1. Plug in the power cord, then press the power switch to the **ON** (|) position.
2. Test the phototherapy pad:
   a. Raise both overhead light fixtures.
   b. Press the mattress **LOW** switch, then verify that the middle two bulbs in the phototherapy pad fixture are on.
   c. Press the mattress **HI** switch, then verify that all the bulbs in the phototherapy pad fixture are on.
3. Test the overhead fixtures:
   a. Place the overhead light fixtures in the operating (up) position.
   b. Press the front **ON/OFF** switch, then verify that all four bulbs of the front overhead light fixture illuminate.
   c. Press the rear **ON/OFF** switch, then verify that all four bulbs of the rear overhead light fixture illuminate.
4. Test the mattress tilt:
   a. Pull and hold the **MATTRESS TILT** latch, then press on either end of the mattress to tilt the phototherapy pad to the desired position.
   b. Release the latch, allowing the phototherapy pad to seat firmly in place.
   c. Release the **MATTRESS TILT** handle.
   d. Press on either end of the mattress to confirm that the phototherapy pad is locked in position.
   e. Repeat steps a–d for all angles and directions of tilt:
      - Flat
      - Trendelenberg at 5º and 10º
      - Reverse-Trendelenberg at 5º and 10°
5. Test the transparent sides: Move each transparent side into the down position, then confirm that each side locks in the up position.
6. Check the bulb timers:
   a. Turn off the Bili-Bassinet.
   b. Check the number on one overhead bulb timer.
   c. Turn on the Bili-Bassinet, wait six minutes, then turn off the Bili-Bassinet.
   d. Check the number on the bulb timer. Verify that the timer has progressed 0.1 hours.
   e. Repeat step a to step d with the remaining overhead bulb timer.
   f. Repeat step a to step d for the phototherapy pad using only the low setting and then only the high setting.

7 Turn the power switch to the **OFF** (O) position.

NOTE If the device does not operate as expected, see *Troubleshooting* on page 6-1.

Section

3

Operation

WARNING **Explosion hazard. Do not use this device in the presence of flammables (e.g., oxygen, nitrous oxide, anesthetics).**

CAUTION

- Read and be familiar with this instruction manual before using this device.
- Only use this device under the direct supervision of a licensed medical practitioner.
- Connect this device directly to a properly grounded hospital-grade outlet.
- When placing items in the storage drawer, do not exceed the weight of 33 lb (15 kg).
- Always lock the wheel casters before placing the patient in the bassinet.
- Do not place objects on the light hood as they may cause the hood to change position or items may fall onto the patient.
- Do not use the Bili-Bassinet to transport the patient.
- During phototherapy treatment cover the patient's eyes with an opaque mask, such as an Olympic Bili-Mask (see Figure 1.4 on page 1-4).
- Do not place the patient directly on the phototherapy surface. Always cover the transparent mattress with a new disposable cover before placing the patient on the mattress.
- Before placing a patient in the bassinet, press on either end of the mattress to confirm that the phototherapy pad is locked in position.
- The mattress must be in place during phototherapy treatment.
- Place rolled blankets or towels around the patient to keep the patient on the lighted area of the mattress.
- Never leave the patient unattended when any side of the bassinet is down.
- Test the transparent sides regularly for correct operation; confirm that each side locks in the up position.
- Keep the safety shield in place during phototherapy to protect the patient from ultraviolet radiation and broken bulbs.
- When using the Bili-Bassinet with a radiant warmer, center the bassinet under the warmer canopy. Never place the radiant warmer canopy directly over the phototherapy light hoods.
- Observe the patient frequently for adverse reactions (e.g., overheating, erythemia, insensible water loss) during phototherapy.
- Monitor the patient's water balance during treatment as it may be affected by phototherapy.
- Monitor the patient's temperature during treatment as it may be affected by phototherapy.
- Measure the patient's bilirubin level at regular intervals during treatment.
- Photo isomers of bilirubin may cause toxic effects.
- Do not use reflective foils because they may cause hazardous body temperatures.
- Patients adjacent to the phototherapy equipment may require eye protection or shielding from phototherapy radiation.

CONT'D

CAUTION

- Do not store drugs and infusion liquids in the phototherapy radiation area.
- Phototherapy devices may affect the heat supply of thermotherapy devices (e.g., incubators, radiant warmers). During phototherapy treatment, thermotherapy devices should be operated in skin-control mode or the air temperature setting or heat output of thermotherapy devices should be reduced as appropriate.
- Use only with an Olympic Medical mattress. Do not use with a water mattress.
- Operators may experience some adverse effects from exposure to phototherapy irradiation if they remain in the irradiated area for a prolonged period.

NOTE

- If the cooling fan fails, a thermostatic switch will open and the mattress fixture will cease operation until the fan is replaced (see page 6-9) and the switch is reset (see page 6-12). The overhead lights may be used without the mattress fixture for conventional two-sided phototherapy.
- The hospital/facility is responsible for ensuring that all personnel who operate or maintain this device are trained in its operation and safe use, and in maintaining training records of attendance and evidence of understanding.

Operating the Bili-Bassinet

To operate the Bili-Bassinet:

1. Plug in the power cord to a hospital-grade electrical outlet.
2. Lock the casters to maintain the correct position.
3. Place a new disposable cover on the transparent mattress.
4. Place the patient on the mattress. Place rolled blankets or towels around the patient to keep the patient on the lighted area of the mattress. Cover the patient's eyes with an opaque mask, such as an Olympic Bili-Mask (see Figure 1.4 on page 1-4).
5. Turn on the lights to deliver the desired light (irradiance) to the patient's exposed skin area:
   - Phototherapy pad—high (four bulbs), low (two bulbs), or off (see page 3-3).
   - Overhead lights—front, rear, or none (see page 3-3).
6. When the desired treatment time is complete, press switches to their off positions.

Using the Phototherapy Pad

The phototherapy pad provides phototherapy light beneath the patient using four blue bulbs and a soft, transparent mattress. The mattress has a rectangular transparent opening in its center; strips of opaque material at the top and bottom of the mattress mask extraneous light.

Required Items:

- Mattress cover

> **CAUTION** To prevent cross-contamination, clean and disinfect the mattress and replace the cover after each use. The slip cover is designed to transmit light properly and to fit securely.

To use the phototherapy pad:

1. Place a new mattress cover on the mattress, then place the patient on the center of the mattress.
2. Protect the patient's eyes by applying an opaque mask, such as an Olympic Bili-Mask, to the patient's eyes.
3. Turn on the phototherapy pad lights using the phototherapy pad **HI/OFF/LOW** switch located on the front panel of the Bili-Bassinet (see Figure 1.1 on page 1-3).

Using the Overhead Lights

The overhead lights are located on the front and rear of the bassinet. They store flush to the sides of the bassinet and can be raised and operated individually (see Figure 3.1).

> **NOTE** Ensure that the transparent side panels on the bassinet are in the "up" position before raising or lowering the lights.

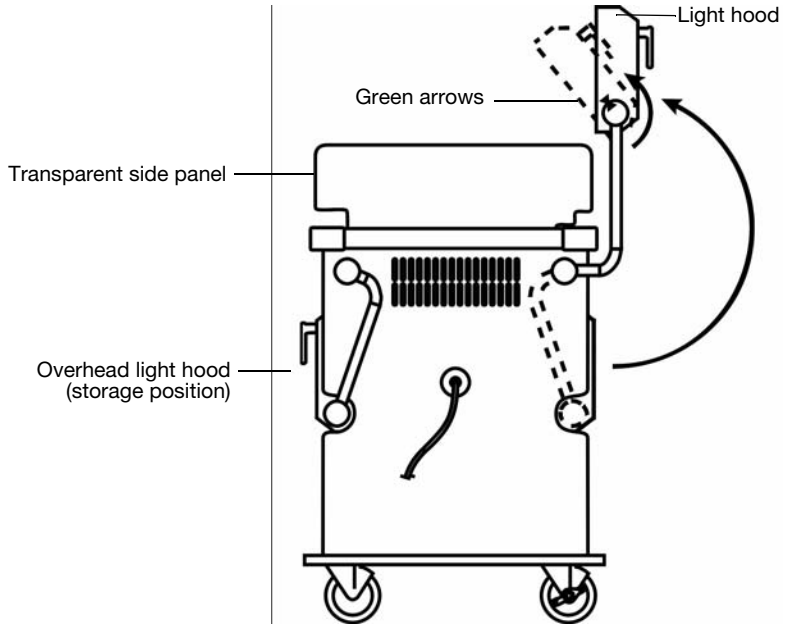
To reposition the lights:

1. Raising the lights (see Figure 3.1 on page 3-4):
   a. Grasp the handle on the light hood, then lift the light until it locks over the bassinet.
   b. Rotate the light fixture toward the mattress until the green arrows on the sides of the fixture align and the fixture locks into position.
2. Lowering the lights:
   a. Turn off the overhead lights.

> **NOTE** The front and rear overhead lights have separate power switches — labeled **FRONT** and **REAR** — on the front panel of the Bili-Bassinet.

   b. Grasp the handle and rotate the **OVERHEAD LIGHT RELEASE** knob clockwise (see Figure 1.1 on page 1-3).
   c. With the light unlocked, lower it as far as it will go, then push the light into the side of the bassinet (see Figure 3.1).

Figure 3.1 Positioning the overhead lights



Positioning the Transparent Sides

All four transparent sides of the Bili-Bassinet can be lowered for ease in accessing the patient.

To position the transparent sides:

1 Lower the sides (see Figure 3.2):

- **a** Place the overhead light in the storage position.
- **b** Lift the side up out of its slot, then gently fold it down against the side of the bassinet.

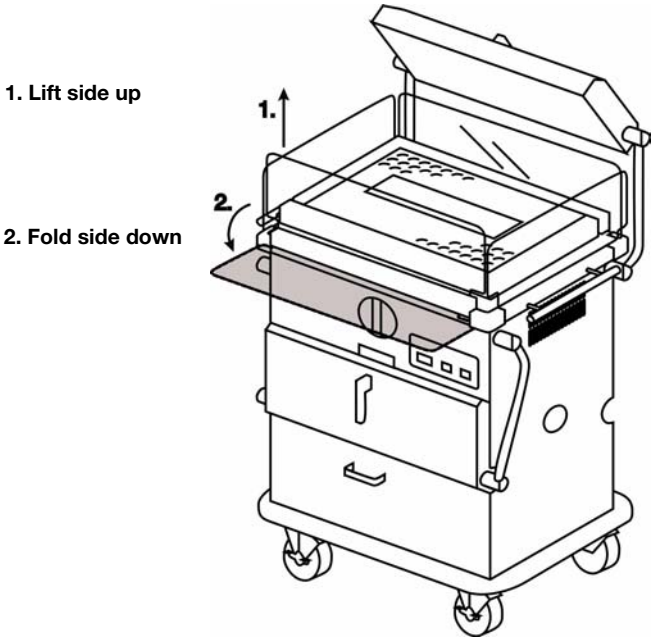
> **CAUTION** Never leave the patient unattended while any side of the bassinet is down.

> **NOTE** The light hood may be left up when lowering the shorter two sides.

2 Raise the sides (see Figure 3.2):

- **a** Place the overhead light in the storage position.
- **b** Lift the side up, then slide it down into its slot.

Figure 3.2 Lowering the Bili-Bassinet sides



Tilting the Mattress

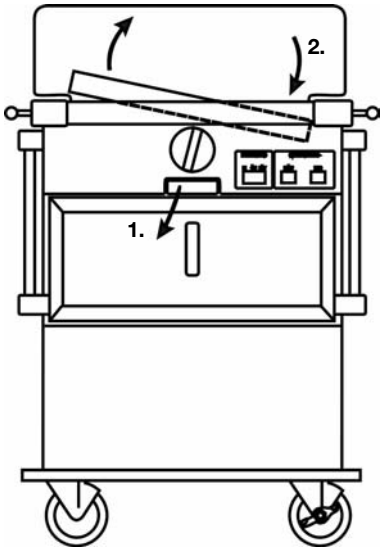
The phototherapy pad and its mattress can be operated in a flat or tilted position. Tilted positions include 5° and 10° Trendelenburg and Reverse-Trendelenburg.

To tilt the mattress:

1. Pull and hold the **MATTRESS TILT** latch (see Figure 3.3), then press on either end of the mattress to tilt the phototherapy pad to the desired position.
2. Release the latch, allowing the phototherapy pad to lock firmly in place.

> **CAUTION** Before placing a patient in the bassinet, press on either end of the mattress to confirm that the phototherapy pad is locked in position.

Figure 3.3 Tilting the mattress



1. Pull and hold **MATTRESS TILT**

2. Push the mattress to tilt

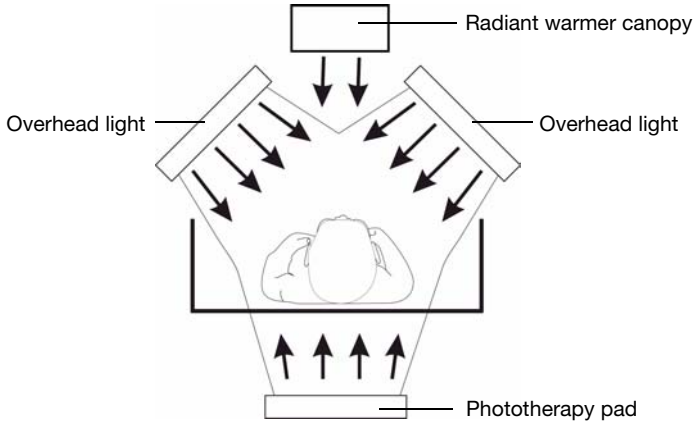
3. Release **MATTRESS TILT**

Using the Bili-Bassinet with a Radiant Warmer

The overhead lights are set far enough apart to allow a radiant warmer to be used between them during treatment (see Figure 3.4).

> **CAUTION** When using the Bili-Bassinet with a radiant warmer, center the bassinet under the warmer canopy. Never place the radiant warmer canopy directly over the phototherapy light hoods.

Figure 3.4 Using the Bili-Bassinet with a radiant warmer



Measuring Irradiance

Irradiance can only be determined by measuring with a radiometer, such as the Olympic Bili-Meter (see page 1-4 and refer to the *Olympic Bili-Meter Model 22 Instruction Manual*).

Section

4

Maintenance

WARNING

- **Electrical shock hazard when the enclosures are open. Unplug the power cord from the electrical outlet before cleaning this device.**
- **Do not clean this device with flammables (e.g., antiseptics, cleaning agents).**

CAUTION

- Only qualified technicians should perform maintenance procedures.
- Do not allow liquid to enter the mattress or overhead light hoods as liquids may cause a shock hazard or damage the internal wiring.
- Never use alcohol to clean the safety shield as alcohol will damage the plastic.
- Keep all safety shields in place during phototherapy to protect the patient from ultraviolet radiation and broken bulbs.
- To prevent cross-contamination, clean and disinfect the mattress and replace the cover after each use.
- Test the transparent sides regularly for correct operation; confirm that each side locks in the up position.

Cleaning the Bili-Bassinet

Required Items:

- Soft cleaning cloths
- Mild cleaning detergent (e.g., Virex™ Tb, Virustat®, Coverage®) or mild soap-and-water solution
- Non-staining disinfectant (e.g., Sporicidin®)

To clean the Bili-Bassinet:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove and discard the disposable mattress cover.
3. Using a soft cloth dampened with mild detergent, wipe the exterior of the Bili-Bassinet, including its power cord. Use a second cloth to dry all exterior surfaces.
4. Using a soft cloth dampened with disinfectant, wipe the light fixtures, bassinet, and mattress.

Cleaning the Phototherapy Pad Fixture

Periodically clean the phototherapy pad fixture.

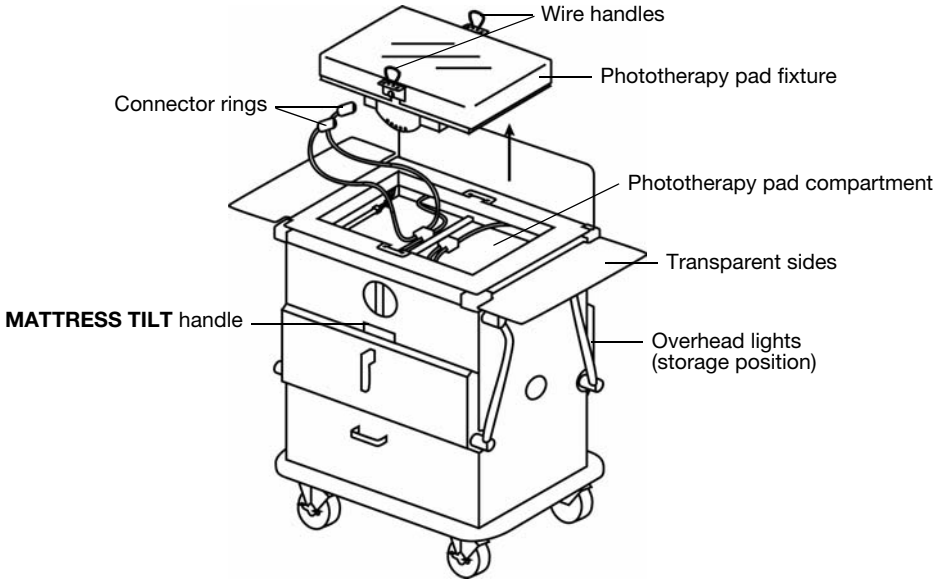
Required Items:

- Soft cleaning cloths
- Mild cleaning detergent (e.g., Virex™ Tb, Virustat®, Coverage®) or mild soap-and-water solution
- Non-staining disinfectant (e.g., Sporicidin®)
- Petroleum jelly or Dow Corning® 111 (silicone)

To clean under the phototherapy pad fixture:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Lower the overhead lights, then lower the transparent sides to gain better access to the phototherapy pad.
3. Remove the phototherapy pad fixture (see Figure 4.1):
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
   c. Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture.

Figure 4.1 Removing the phototherapy pad fixture



4 Clean the phototherapy pad compartment:

   a Using a cloth dampened with disinfectant, wipe the compartment. Be sure to clean beneath wires and counterbalance springs.

   b Sparingly wipe the two exposed counterbalance shafts on either side of the compartment with petroleum jelly or Dow Corning® 111 (silicone).

5 Place the phototherapy pad fixture:

   a Reattach the two connectors to the bottom of the phototherapy pad, then twist their rings to lock them in place.

   b Seat the phototherapy pad fixture into the bassinet. Ensure that the fixture is securely seated.

   c Place the mattress. Ensure that the wire handles are fully seated on either side of the fixture.

6 Test the phototherapy pad for proper operation (see page 2-3).

Inspecting the Bili-Bassinet

CAUTION Perform the inspection annually to assure patient and operator safety.

To inspect the Bili-Bassinet:

- Examine both the arm pivot assemblies and the counterbalance mechanisms of the overhead light fixtures for any wear and looseness and to verify smooth operation.
- Test the transparent sides for correct operation: move each transparent side into the down position, then confirm that each side locks in the up position.

Replacing the Bulbs

Replace the Bili-Bassinet bulbs at 3,000 hours to maintain greater than 75% of initial irradiance (irradiance measured at 100 hours).

Bulb Timers

The bulb timers operate whenever the bulbs illuminate. View the elapsed time shown to track bulb life and determine when to replace the treatment bulbs. The timers for each of the overhead lights and phototherapy pad are located to the right of the mattress tilt lever.

NOTE
- The ***elapsed time*** bulb timers cannot be reset by the user.
- The bulb timers may be labeled as ***Lamp Timer***.
- Change all treatment bulbs at the same time.
- Record the bulb change in the *Medical Device History*.

CAUTION Use only bulbs specified by Olympic Medical. Use of other bulbs may affect the safety and efficacy of treatment.

Replacing the Overhead Bulbs

Required Items:

- Replacement bulbs (see page 7-1)
- Phillips-head screwdriver

To replace the overhead bulbs:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the light shield: Remove the screws and lift the light shield toward the bassinet, then lift it up and out from the fixture.
3. Rotate each individual bulb out of its socket.
4. Install the bulbs: For each new bulb insert the prongs into the socket, then carefully rotate the bulb into place.
5. Place the safety shield back onto the light hood, then secure it in place with the retaining screws and washers.
6. Test for proper operation (see page 2-3).

Replacing the Mattress Pad Bulbs

Required Items:

- Replacement bulbs (see page 7-1)
- Phillips-head screwdriver

To replace the mattress pad bulbs:

1. Turn the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the mattress.
3. Pull the **MATTRESS TILT** handle, then tilt the phototherapy pad.
4. Remove the screw and washer on the end of the pad fixture.
5. Tilt the phototherapy pad the opposite direction and remove the screw and washer on the other end of the pad fixture.
6. Lift off the plastic shield (see Figure 2.1 on page 2-2).
7. Install the four bulbs into the sockets, ensuring that the bulb pins slide into the bulb-holder slots. Rotate each bulb to seat it in position.
8. Re-install the plastic shield, screws and washers and then place the mattress in position.
9. Test for proper operation (see page 2-3).

Section

5

Troubleshooting

Should you experience difficulty when operating your Bili-Bassinet, consult the following table. For problems not listed in the table, contact Olympic Medical (see page 5-2)

Table 5.1 Troubleshooting chart

Problem	Probable Cause	Solution
■ Power on ■ Bulbs not lit ■ Fan doesn't run	No power	Plug the power cord into a functioning hospital-grade electrical outlet.
		Check the external circuit breaker.
	Blown fuse (4A or 1/8A)	Replace the fuse (see page 6-2).
	Relay hold-down switch not in place	Disconnect from power source, then open the device. Secure the relay hold-down clip to the relay switch.
■ Power on ■ Bulb not lit ■ Fan runs	Bulb not seated	Remove and reinstall the bulb (see page 4-3).
	Burned out bulb	Replace the bulb (see page 4-3).
	Loose connection or break in wire	Check the wire connections.
	Damaged bulb holder	Replace the bulb holder (see page 6-6).
	Unplugged connector	Ensure that all connectors are securely seated on the ballast box (see page 6-3).
	Damaged ballast	Determine if the ballast is damaged by swapping connectors on the ballast face (i.e., swap connector P3 and P4). Replace the damaged ballast if necessary (see page 6-15).
	Tripped thermostat	Identify and correct the cause of trip: ■ Failed fan — replace the fan (see page 6-9). ■ Blocked airflow — clean the vents beneath the mattress fixture. Once the problem is corrected, reset the thermostat (see page 6-12).
	Damaged thermostat	Replace the thermostat (see page 6-13).
■ Power on ■ Bulbs light ■ Fan doesn't run	Blocked or jammed fan	Inspect the blades and verify the fan turns freely.
	Malfunctioning fan motor	Replace the fan (see page 6-9).
	Loose connection or break in wiring	Check the wiring.

Table 5.1 Troubleshooting chart, continued

Problem	Probable Cause	Solution
■ Power on ■ Fan runs ■ Bulb lights but is dim or makes humming sound	Reduced irradiance	Replace the bulbs (see page 4-3).

Technical Support

For technical support, contact Olympic Medical at:

Toll-free: 1-800-426-0353 (US/Canada)
Phone: 206-767-3500 (worldwide)
Fax: 206-762-4200

Section

6

Service

WARNING **Electrical shock hazard when any enclosure is open. Unplug the power cord from the electrical outlet before servicing this device.**

CAUTION

- Only qualified technicians should perform service procedures.
- Reattach all ground wires after servicing to ensure proper grounding.
- Note the location of the lock washers when disassembling the device. To ensure ground integrity, reseat all washers when reassembling the device.
- Do not allow liquids to enter the enclosure as this may result in a shock hazard or damage internal wiring.
- Inspect the Bili-Bassinet on an annual basis to assure patient and operator safety (see page 4-3).

Repair Policy

Do not use malfunctioning equipment. To promote product reliability, a qualified technician may perform the replacement and service procedures described in this section. Before servicing your equipment, check your equipment warranty status, check the normal repair procedures for your facility, and determine the appropriate repair procedure to perform.

To ensure performance to factory specifications, it is recommended that all replacement parts be those either manufactured or sold by Olympic Medical. After all repair actions and tests are complete, perform the pre-operative test procedure in this manual (see page 2-3) to ensure proper operation and compliance with published specifications.

Repair Procedures

Consult the troubleshooting chart (see page 5-1) to identify probable causes and solutions before performing repair procedures.

WARNING **Electrical shock hazard when the enclosure is open. Unplug the power cord from the electrical outlet before servicing this device.**

CAUTION

- Reattach all ground wires after servicing to ensure proper grounding.
- Note the location of the lock washers when disassembling the device. To ensure ground integrity, reseat all washers when reassembling the device.
- Do not allow liquids to enter bulb enclosure as this may result in a shock hazard or damage internal wiring.

Replacing the Fuses

If the device does not function when the power cord is plugged in and the power is turned on, a fuse may be blown.

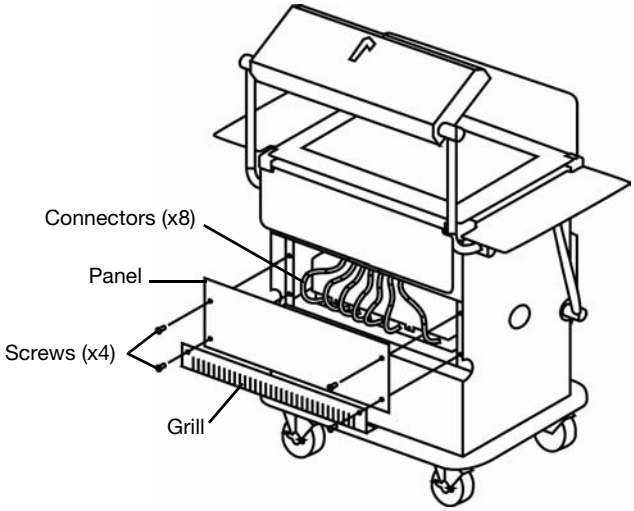
Required Items:

- Fuses: two 4A, one 1/8A (part no. 200021)
- Phillips-head screwdriver

To replace the fuses:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove the front panel (see Figure 6.1):
   a. Raise the front overhead light, then remove the four screws that secure the panel in the overhead light storage compartment.
   b. Disconnect the eight connectors from the ballast box.

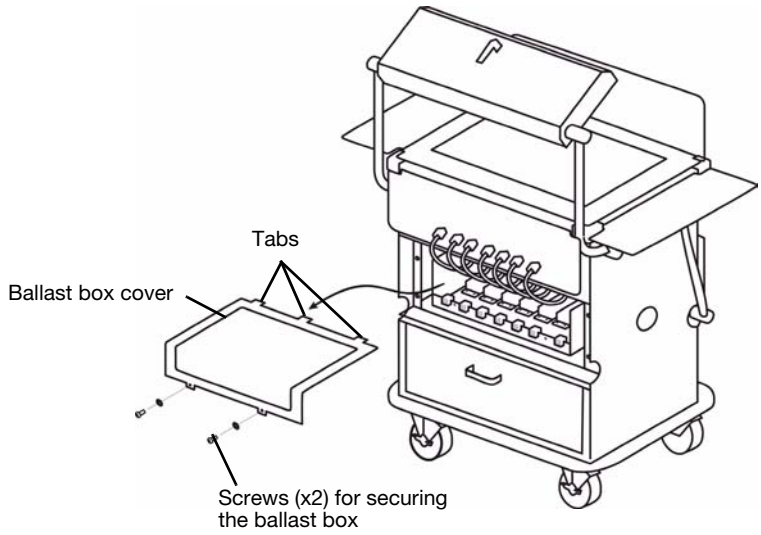
Figure 6.1 Removing the front panel



3 Remove the ballast box cover (see Figure 6.2):

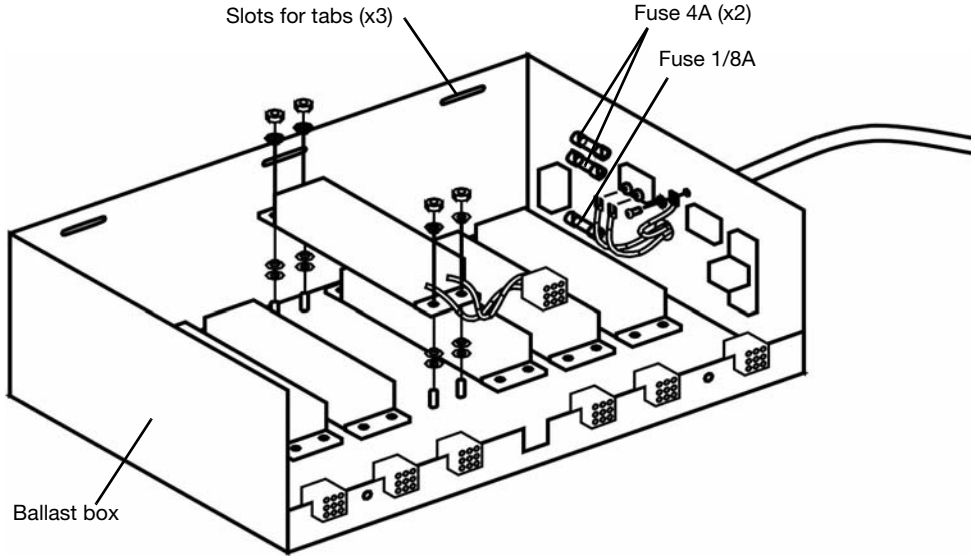
- **a** Remove the two screws that secure the ballast box cover.
- **b** Unplug the cable connectors and set the cables on top of the box.
- **c** Push the cover back and lift up while moving cables aside.

Figure 6.2 Removing the ballast box cover



4 Remove the fuses. The fuses are located inside the ballast box on the rear of the right wall (see Figure 6.3).

Figure 6.3 Replacing the fuses



5 Insert the new fuses.

CAUTION For protection against a fire hazard, replace only with the correct type and rating of fuse.

6 Reassemble the Bili-Bassinet:

   a Insert the ballast box cover. Ensure that the tabs on the cover align with the ballast box slots (see Figure 6.3). Secure the ballast box cover with its two screws.

   b Attach the eight connectors to the ballast box.

   c Place the panel, then secure in place with its four screws.

NOTE The cover fits outside of the box sides. Removing the rear cover will make it easier to locate the tabs in the slots but is not strictly necessary.

7 Test the device for operation (see page 3-2).

Replacing the Switches

If the switches malfunction, they may need to be replaced.

Required items:

- Switches (part no. 200001)
- Screwdriver

To replace the switches:

1 Press the power switches to the **OFF** (O) position, then unplug the power cord.

2 Lower the overhead lights.

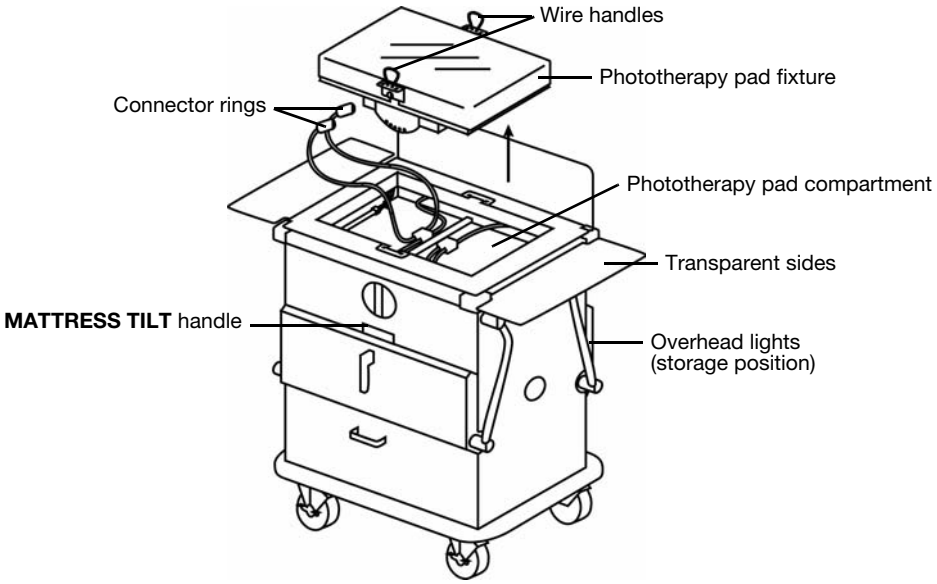
3 Remove the phototherapy pad fixture (see Figure 6.4):

   a Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.

   b Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.

   c Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture.

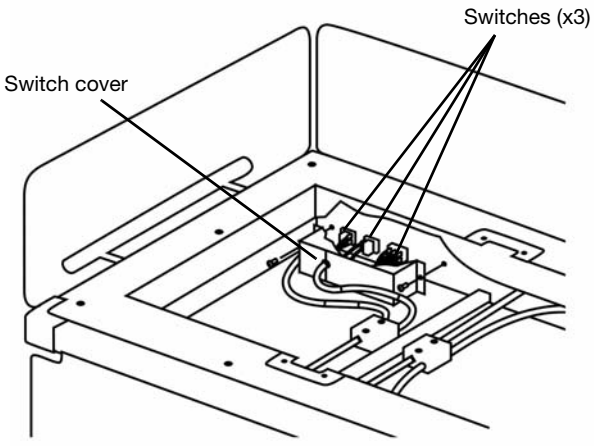
Figure 6.4 Removing the phototherapy pad fixture



4 Remove the switch (see Figure 6.5):

- **a** Remove the two screws that secure the switch cover, then remove the cover.
- **b** Disconnect the push-on connector from the back of the switch.
- **c** Pressing the clips that hold the switch in place, push the switch out the front of the panel.

Figure 6.5 Accessing the switches



5 Place the new switch:

- **a** Push the new switch into the panel.
- **b** Connect the push-on connector to the back of the switch.
- **c** Place the cover, then secure with its two screws.

6 Test for proper operation (see page 2-3).

Replacing the Bulb Holder

If the bulb has been replaced but still does not light, replace the bulb holder.

Bulb Holder in the Overhead Lights

Required items:

- Bulb holder (part no. 200018)
- Screwdriver
- Medium common pliers

To replace the bulb holder:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove the light shield: Remove the screws and lift the light shield toward the bassinet, then lift it up and out from the fixture.
3. Rotate each bulb out of its socket; set the bulbs aside in a secure place.
4. Remove the reflectors:
   a. Remove the six screws that secure the two side reflectors (see Figure 6.6).
   b. Press the shield springs to remove the flanged side reflector, then remove the other side reflector.
   c. Remove the six screws that secure the large main reflector, then remove the reflector (see Figure 6.7).

Figure 6.6 Removing the side reflectors

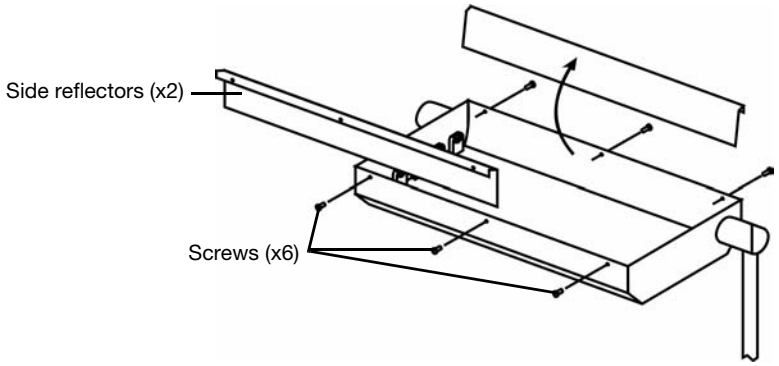
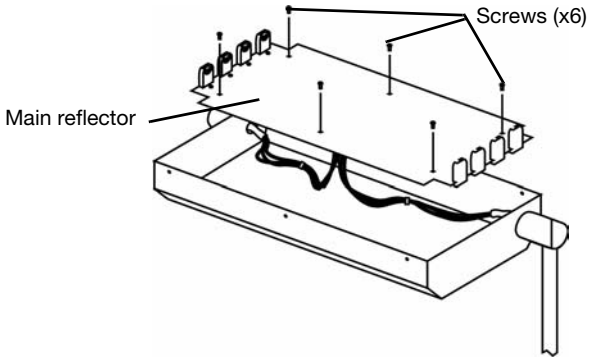


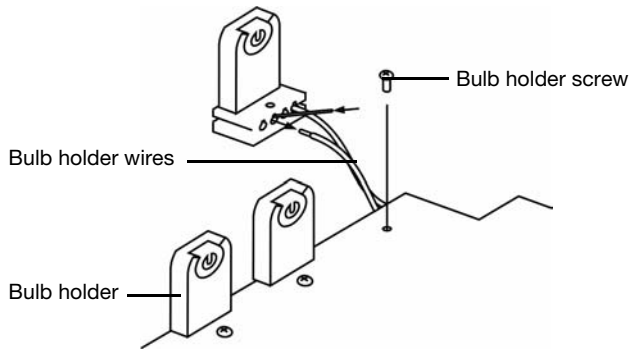
Figure 6.7 Removing the overhead light reflector



5 Remove the bulb holder (see Figure 6.8):

- **a** Remove the screw that secures the bulb holder, then remove the bulb holder.
- **b** Using the pliers, crush the lamp holder base to remove both wires from the bulb holder.

Figure 6.8 Removing a bulb holder



6 Install the new bulb holder:

- **a** Insert the two wires into the new bulb holder.
- **b** Place the bulb holder, then secure with the bulb holder screw.

7 Reassemble the Bili-Bassinet:

- **a** Place the reflector, then secure with its six screws.
- **b** Place the two side reflectors, then secure them with their six screws.
- **c** Install the bulbs: For each new bulb insert the prongs into the socket, then carefully rotate the bulb into place.
- **d** Place the safety shield back onto the light hood, then secure it in place with the retaining screws and washers.

8 Test the overhead lights for proper operation (see page 2-3).

Bulb Holder in the Phototherapy Pad

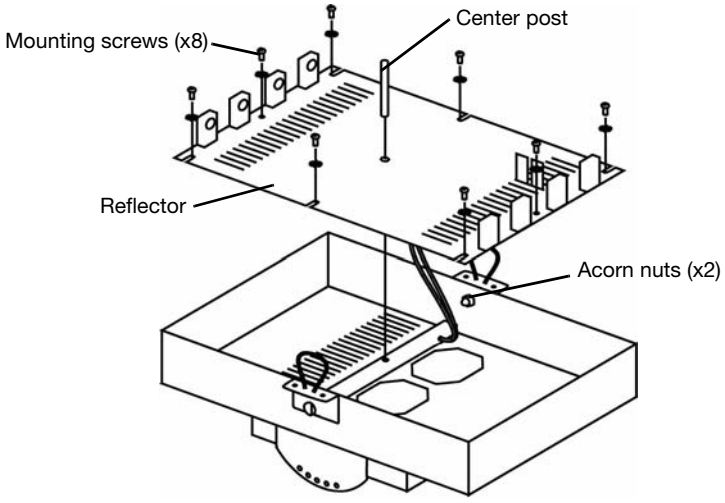
Required items:

- Bulb holder (part no. 200018)
- Screwdriver
- Nutdriver
- Medium common pliers

To replace the bulb holder:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5):
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
   c. Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture.
3. Rotate each bulb out of its socket; set the bulbs aside in a secure place.
4. Remove the reflector: Remove the two acorn nuts, the center post, and the eight mounting screws (see Figure 6.9).

Figure 6.9 Removing the reflector



5. Remove the bulb holder (see Figure 6.8):
   a. Remove the screw securing the bulb holder, then remove the bulb holder.
   b. Using the pliers, crush the lamp holder base, then remove both wires from the bulb holder.

6 Install the new bulb holder:

   a Insert the two wires into the new bulb holder.

   b Place the bulb holder, then secure with the bulb holder screw.

7 Reassemble the Bili-Bassinet:

   a Place the reflector, then secure with its two acorn nuts, center post, and eight mounting screws.

   b Install the bulbs: For each new bulb insert the prongs into the socket, then carefully rotate the bulb into place.

   c Reattach the two connectors to the bottom of the phototherapy pad, then twist their rings to lock them in place.

   d Seat the phototherapy pad fixture into the bassinet. Ensure that the fixture is securely seated.

   e Place the mattress. Ensure that the wire handles are fully seated on either side of the fixture.

8 Test the phototherapy pad for proper operation (see page 2-3).

Replacing the Fan

The Bili-Bassinet contains a fan to help cool the bulbs and ballasts while they are on. If the power is on and the bulbs illuminate but the fan does not run, replace the fan.

Required items:

- Cooling fan (part no. 200149)
- Medium-size Phillips-head screwdriver

To replace the fan:

1 Press the power switches to the **OFF** (O) position, then unplug the power cord.

2 Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5):

   a Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.

   b Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.

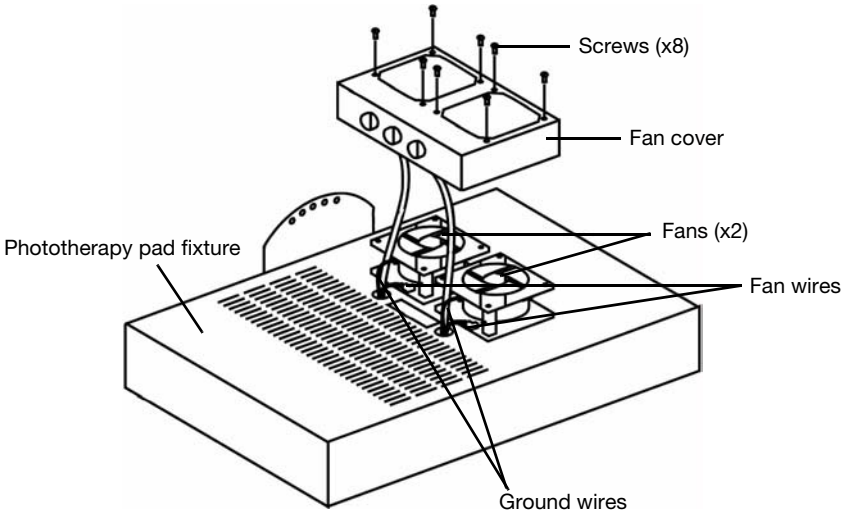
   c Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture.

3 Remove the fan (see Figure 6.10):

   a Place the phototherapy pad fixture upside down on a stable work surface, then remove the eight screws securing the fan cover.

   b Disconnect the ground wire and connector from the fan being replaced, then remove the cooling fan (see Figure 6.10).

Figure 6.10 Removing the fan



4 Install the new fan:

- **a** Connect the ground wire and connector to the replacement fan.
- **b** Place the fan cover, then secure its eight screws.

5 Reassemble the Bili-Bassinet:

- **a** Reattach the two connectors to the bottom of the phototherapy pad, then twist their rings to lock them in place.
- **b** Seat the phototherapy pad fixture into the bassinet. Ensure that the fixture is securely seated.
- **c** Ensure that the wire handles are fully seated on either side of the fixture. Place the mattress.

6 Test for proper operation (see page 2-3).

Testing the Thermostat

Test the thermostat to determine if it is working properly. If the thermostat has been replaced, test it to verify correct assembly.

Required items:

- Pencil (x2)

To test the thermostat:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5).
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture.
   c. Release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
3. Place the pencils in the paths of the two fans to prevent them from moving.
4. Replace the phototherapy pad fixture (see Figure 6.4 on page 6-5).
5. Plug in the power cord, then press the power switch to the **ON** (|) position.
6. Turn the fixture to **HIGH**.
7. The fixture should shut down in about 30 minutes, as the thermostat has tripped due to the fans inability to exhaust the heat of the ballasts and bulbs.
8. Press the power switch to the **OFF** (O) position, then unplug the power cord.
9. Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5).
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture.
   c. Release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
10. Remove the pencils from the fans.
11. Replace the phototherapy pad fixture (see Figure 6.4 on page 6-5).
12. Reset the thermostat (see page 6-12).

Resetting the Thermostat

If the thermostat trips, fix the cause of the trip, then reset the thermostat.

Required items:

- Screwdriver
- Frozen cold pack
- Cloth to cover cold pack

To reset the thermostat:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5):
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
   c. Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture.
3. Rotate each bulb out of its socket; set the bulbs aside in a secure place.
4. Correct the cause of the thermostat trip (e.g., clean the vents, remove blockage from the fan, replace the damaged fan).
5. Place the frozen cold pack against the thermostat fins (see Figure 6.9), then cover the cold pack with a cloth and allow it to sit for 10 minutes before removing the pack.
6. Reassemble the Bili-Bassinet:
   a. Install the bulbs: For each new bulb insert the prongs into the socket, then carefully rotate the bulb into place. Place the white bulbs on the outside and the blue bulbs in the center.
   b. Reattach the two connectors to the bottom of the phototherapy pad, then twist their rings to lock them in place.
   c. Seat the phototherapy pad fixture into the bassinet. Ensure that the fixture is securely seated.
   d. Place the mattress. Ensure that the wire handles are fully seated on either side of the fixture.
7. Test for proper operation (see page 2-3).

Replacing the Thermostat

If the thermostat has been replaced and continues to trip, replace the thermostat.

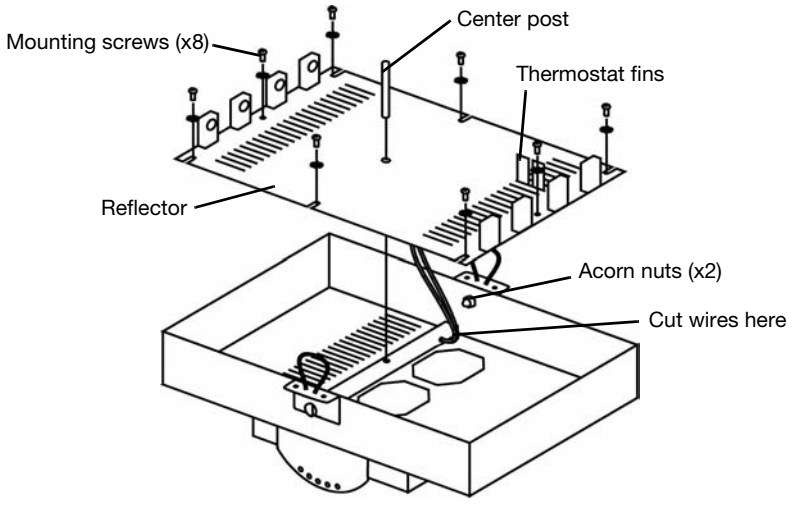
Required items:

- Thermostat (part no. 400973)
- Medium-size Phillips-head screwdriver
- Wire cutter/stripper
- Barrel splices (x2) for 18 gauge wire
- Crimper
- Pencil (x2)
- Tape (to secure pencils)
- Freeze spray

To replace the thermostat:

1. Press the power switches to the **OFF** (O) position, then unplug the power cord.
2. Remove the phototherapy pad fixture (see Figure 6.4 on page 6-5):
   a. Remove the mattress, then pull the wire handles up from their recesses in the phototherapy pad fixture.
   b. Pull the **MATTRESS TILT** handle while lifting the phototherapy pad fixture by the wire handle at the front of the fixture. Next, release the **MATTRESS TILT** handle, then grasp the wire handle at the back of the fixture and lift the fixture clear of the bassinet.
   c. Twist the two connector rings to remove them from the bottom of the phototherapy pad fixture and remove fixture from bassinet.
   d. Remove shield hardware and shield.
3. Rotate each bulb out of its socket; set the bulbs aside in a secure place.
4. Remove the reflector: Remove the two acorn nuts, the center post, and the eight mounting screws (see Figure 6.11).

Figure 6.11 Removing the reflector

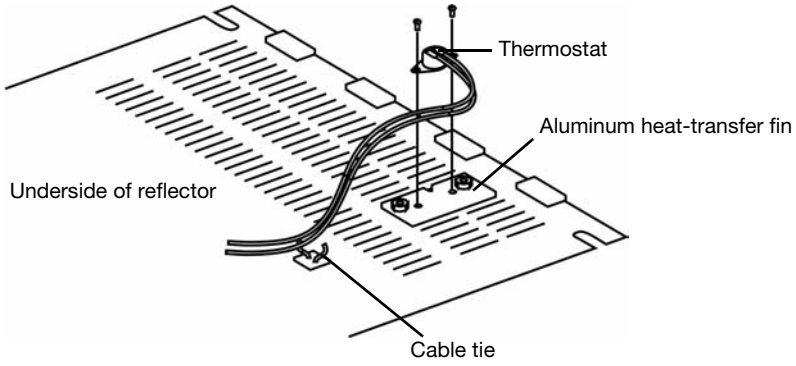


5 Remove the thermostat (see Figure 6.12):

a Remove the screws and washers that secure the thermostat to the aluminum heat transfer fin. Leave the hardware securing the fin to the reflector in place.

b Cut the cable ties that secure the thermostat wires.

Figure 6.12 Replacing the thermostat



6 Install the new thermostat:

a Mount the thermostat, then reroute the new wires along the path of the old wires.

b Cut the old thermostat wires 2 in. (5 cm) from the bushing in the center divider.

c Connect the new thermostat wires: Using barrel splices, crimp the wires from the new thermostat to the wires from the old thermostat.

7 Reassemble the Bili-Bassinet:

a Place the reflector, then secure with its two acorn nuts, center post, and eight mounting screws.

b Install the bulbs: For each new bulb insert the prongs into the socket, then carefully rotate the bulb into place.

c Replace the shield and shield hardware.

d Reattach the two connectors to the bottom of the phototherapy pad, then twist their rings to lock them in place.

e Seat the phototherapy pad fixture into the bassinet. Ensure that the fixture is securely seated.

f Place the mattress. Ensure that the wire handles are fully seated on either side of the fixture.

8 Test the mattress fixture thermal cutout:

a Remove the mattress fixture from the cart and temporarily stall the two fans with pencils. Leave cables connected.

b Secure the pencils with tape such that the fixture can be replaced and reinstall fixture in cart.

c Set mattress fixture to **HIGH** and observe all four lamps light.

d Allow fixture to operate until lamps extinguish (cutout operates).

e Turn off fixture, remove pencils and tape and remove fixture clear cover.

f Direct freeze spray for three seconds on cutout fins.

g Set mattress fixture to **HIGH** and observe that all four lamps light and that both fans operate.

h Replace the fixture cover and fixture in unit.

9 Test for proper operation (see page 2-3).

Replacing the Ballast

If the bulb holders and connections are good, but the bulb does not light or is dim or makes a loud humming sound, replace the ballast.

Required items:

- Ballast (part no. 400966)
- Medium-size Phillips-head screwdriver
- Wire cutter/stripper
- Nutdriver
- Crimper and barrel splices (2) for 18 gauge wire if replacing ballast #1 or #2

To replace the ballast:

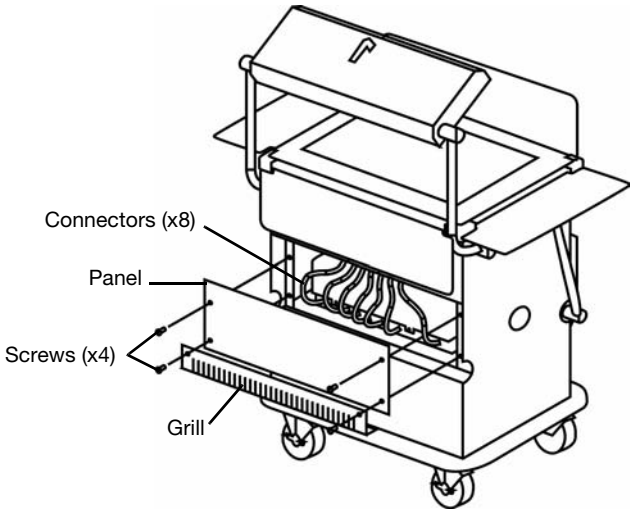
1 Press the power switches to the **OFF** (O) position, then unplug the power cord.

2 Remove the front panel (see Figure 6.13):

a Raise the front overhead light, then remove the four screws that secure the panel in the overhead light storage compartment.

b Disconnect the eight connectors from the ballast box.

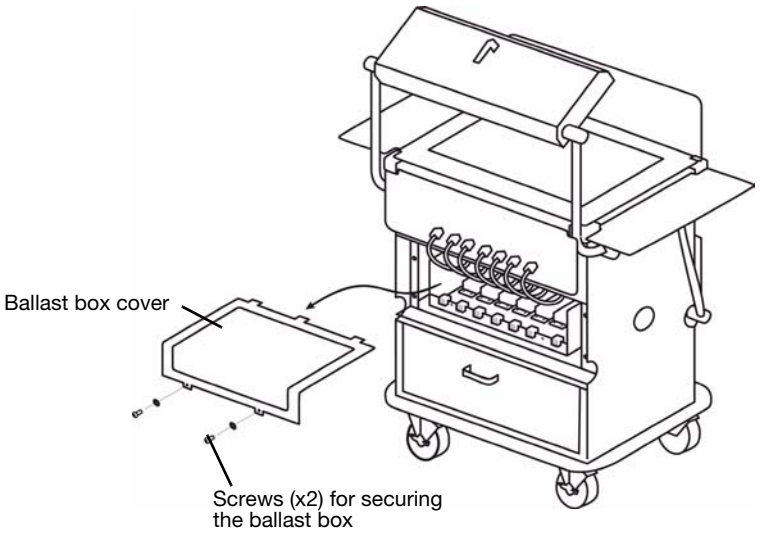
Figure 6.13 Accessing the ballast



3 Remove the ballast box (see Figure 6.14):

- **a** Remove the two screws that secure the ballast box cover, then push the cover back and lift up.
- **b** Remove the drawer: Slide the storage drawer out, then push up on the plastic release levers on each slide rail (see Figure 6.14) and pull the drawer out.
- **c** Remove the four screws that secure the ballast box, then gently lift the box out of the Bili-Bassinet.

Figure 6.14 Removing the ballast box cover



4 Remove the ballast box:

- **a** Remove the two acorn nuts from the front floor of the ballast box.
- **b** Loosen the four screws that secure the ballast box (see Figure 6.15).
- **c** Remove the three wires that connect the power cord to the inside of the ballast box (see Figure 6.3), then place the ballast box on a work surface.

5 Remove the ballast:

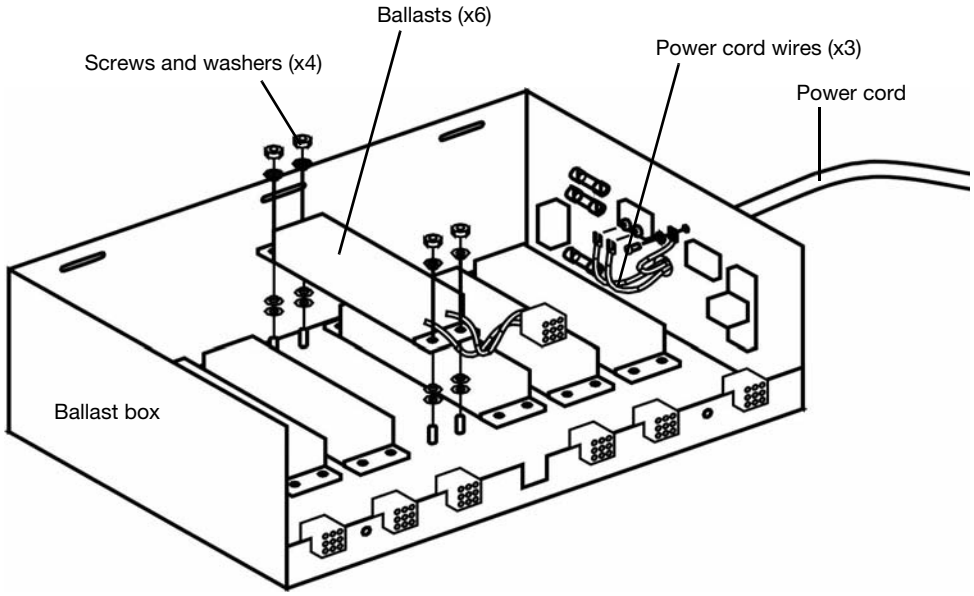
- **a** Disconnect the black and white wires that connect the ballasts to the terminal blocks (see *Drawings and Schematics* on page A-1).

NOTE On ballasts 1 and 2, two additional wires must be removed from the ballast connectors prior to removing the ballast (see page A-1):

- Ballast 1: Cut the red wire #42 and black wire #79 at the connector.
- Ballast 2: Cut the yellow wire #59 and white wire #20 at the connector.

- **b** Remove the green ground wire that connects the ballast connector to the grounding stud.
- **c** Remove the nuts and washers that secure the ballast, paying attention to position and type of washers, then remove the ballast and connector.

Figure 6.15 Replacing the ballast



6 Insert the new ballast:

NOTE Replace all of the hardware to maintain proper ballast isolation.

a For ballasts #1 and #2, insert the wires into the connector as follows:

Ballast	Pin 7	Pin 8
#1	red	black
#2	yellow	white

b Place the ballast and its washers, then secure its locking nuts.

NOTE Hardware orientation is: nylon flat washer and shoulder washer below ballast; shoulder washer and locking nut above ballast. Shoulders face the ballast.

c Attach the green ground wire to the grounding stud.

d Connect the black and white wires connecting the ballasts with the terminal blocks on the side of the ballast box (see *Drawings and Schematics* on page A-1).

e On ballasts #1 and #2, connect the two extra wires to the corresponding wires cut from the connector with barrel splices.

7 Reassemble the Bili-Bassinet:

a Place the ballast box, then secure in place with its four screws.

b Insert the drawer, then slide it into the compartment.

c Insert the ballast box cover. Ensure that the tabs on the cover align with the ballast box slots (see Figure 6.3). Secure the ballast box cover with its two screws.

d Attach the eight connectors to the ballast box.

e Place the panel, then secure in place with its four screws.

8 Test the device for operation (see page 3-2).

Returning for Service

When sending equipment to Olympic Medical for service:

1 Clean the device, then securely package it, and its power cord, in the original shipping container, if possible, and include:

a A letter describing, in detail, the difficulties experienced.

b All warranty information; include a copy of the invoice or other applicable documentation.

c Purchase order (PO) number to cover the repair of any device not under warranty.

d Return address and bill-to information.

e Contact person (name and telephone number) for operational inquiries.

2 Ship the equipment prepaid to Olympic Medical.

Section

7

Replacement Parts

NOTE Only use Olympic Medical–approved parts with the Bili-Bassinet.

Ordering Information

To order parts and accessories, contact:

Olympic Medical
Customer Service Department
5900 First Ave S
Seattle, WA 98108 USA

Toll-free: 1-800-426-0353 (US/Canada)
Phone: 206-767-3500 (worldwide)
Fax: 206-762-4200
Web: www.OlympicMedical.com

Parts and Accessories

When ordering, provide the item number to the customer service representative.

Table 7.1 Parts and accessories

Item Name / Description	Item Number
Bulbs	
Bulb, Olympic Blue (Type OB)	51418
Mattress Protection	
Mattress covers, disposable	58106
Patient Eye Protection	
Bili-Mask, Easy-On style, regular size	52410
Bili-Mask, Easy-On style, premie size	52420
Bili-Mask, Quick-Stick style, regular size	52440
Bili-Mask, Quick-Stick style, premie size	52430
Bili-Mask, Regular style, regular size	52411
Bili-Mask, Regular style, premie size	52422

Table 7.1 Parts and accessories, continued

Item Name / Description	Item Number
Repair Parts	
Ballast, with connector	400966
Bulb holder	200018
Fan	200149
Fuse, 1/8A	200021
Fuse, 4A	200021
Mattress	401282
Switch, mattress pad	200001
Switch, overhead light	200001
Thermostat	400973
Accessories	
Bili-Meter with Type B-22 sensor (overhead lights)	53822
Bili-Meter with Type F-22 sensor (light pads)	53825
Type B-22 sensor only (overhead lights)	53860
Type F-22 sensor only (light pads)	53865

Section

8

Specifications

Intended Use

The Olympic Bili-Bassinet is intended to provide one- or two-sided therapeutic irradiance to treat neonatal hyperbilirubinemia.

Irradiance Average at 20 in. (50.8 cm)

- Overhead Lights: 16.9 µW/cm²/nm
- Mattress LOW: 23.7 µW/cm²/nm
- Mattress HI: 36.6 µW/cm²/nm

Note: Stated irradiance is measurement of new, burned-in Type OB bulbs with an Olympic Bili-Meter™.

Dimensions

Size – Overhead Lights Up

54-in. high x 31-in. wide x 38-in. deep
137-cm high x 79-cm wide x 96.5-cm deep

Size – Overhead Lights Down (Stored)

44-in. high x 27-in. wide x 38-in. deep
112-cm high x 69-cm wide x 96.5-cm deep

Weight

230 lb 104 kg

Electrical

Power Requirements

- Voltage: 115V~
- Consumption: 3.5A
- Frequency (current): 60 Hz

Ground

Does not exceed 0.13Ω

Fuses

- Two 4A 3AG Slo-Blo
- One 1/8A 3AG fast acting

Bulbs

Nominal bulb life (for 75% of initial irradiance, Type OB): 3,000 hours

Environmental

Temperature

- Operating: 65–81°F 18–27°C
- Shipping: -40–158°F -40–70°C
- Storage: -40–158°F -40–70°C

Relative Humidity (RH)

- Operating: 10–95%, non-condensing
- Shipping/Storage: 10–100%, condensing

Altitude (Maximum)

10,000 ft 3,000 m

Pressure

0.5–1.0 atm 500–1600 hPa

Noise

Maximum noise level: 55 dB(A)

Controls

- On (|) and off (O) for each overhead light hood.
- High (four bulbs), low (two bulbs; center off), or off (O) for phototherapy pad.
- Mattress tilt allows ±10° from horizontal; locking positions are at 0°, 5°, and 10°.
- Hood release allows the overhead light hoods to be placed in storage position.

External Connections

Hospital-grade power cord

Product and Accessories

Item	Catalog No.
Bili-Bassinet	58110

Complete with mattress and 48 disposable mattress covers.

For additional items, see *Parts and Accessories* on page 7-1.

Regulatory, Electrical Safety, and Classifications

- FDA Class 2
- Health Canada Class 2
- CAN/CSA C 22.2 No. 60601-1
- UL 60601
- IEC 60601-1-2 (2001)
- IEC 60601-2-50
- CSA Class I
- Ordinary Equipment (IPXØ)
- Type B Equipment
- Not suitable for use in the presence of flammable anaesthetic mixtures with air, oxygen, or nitrous oxide

Service

Service can be performed by hospital technicians. Parts are often available on an overnight express basis. See *Ordering Information* on page 7-1 for more information.

Warranty

One-year warranty, includes parts and labor. Excludes bulbs.

Electromagnetic Compatibility

The Bili-Bassinet complies with the requirements of IEC 60601-1-2 (2001). For information, see pages 8-3–8-5.

Product Disposal

Disposal of the Bili-Bassinet does not require any special precautions. Dispose of according to your local disposal regulations.

The bulbs contain mercury. Dispose of according to your local disposal regulations.

Electromagnetic Specifications – Manufacturer's Declaration

The Olympic Bili-Bassinet is intended for use in the electromagnetic environment specified below. The customer or the user of the Bili-Bassinet should assure that it is used in such an environment.

Table 8.1 Electromagnetic emissions

Emissions Test	Compliance	Electromagnetic Environment — Guidance
Radio Frequency (RF) Emissions CISPR 11	Group 1	The Bili-Bassinet uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The Bili-Lite is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Table 8.2 Electromagnetic immunity

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment — Guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Bili-Bassinet requires continued operation during power mains interruptions, it is recommended that the Bili-Bassinet be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE U_T is the alternating current (ac) mains voltage prior to the application of the test level.

Table 8.3 Electromagnetic immunity

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment — Guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the Bili-Bassinet, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms[1]	**Recommended separation distance:** $d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz ...where (P) is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and (d) is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[1], should be less than the compliance level in each frequency range.[2] Interference may occur in the vicinity of equipment marked with the following symbol:

1. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Bili-Bassinet is used exceeds the applicable RF compliance level above, the Bili-Bassinet should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Bili-Bassinet.
2. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

NOTE

- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Bili-Bassinet

The Bili-Bassinet is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Bili-Bassinet can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Bili-Bassinet as recommended below, according to the maximum output power of the communications equipment.

Table 8.4 Recommended separation distances

Rated maximum output power of transmitter in watts (W)	**150 kHz to 80 MHz** $d = 1.2\sqrt{P}$	**80 MHz to 800 MHz** $d = 1.2\sqrt{P}$	**800 MHz to 2.5 GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance (*d*) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where (*P*) is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE

- At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Drawings and Schematics

Figure A.1 Bili-Bassinet – Wiring Diagram, Drawing No. 700241, Rev. C

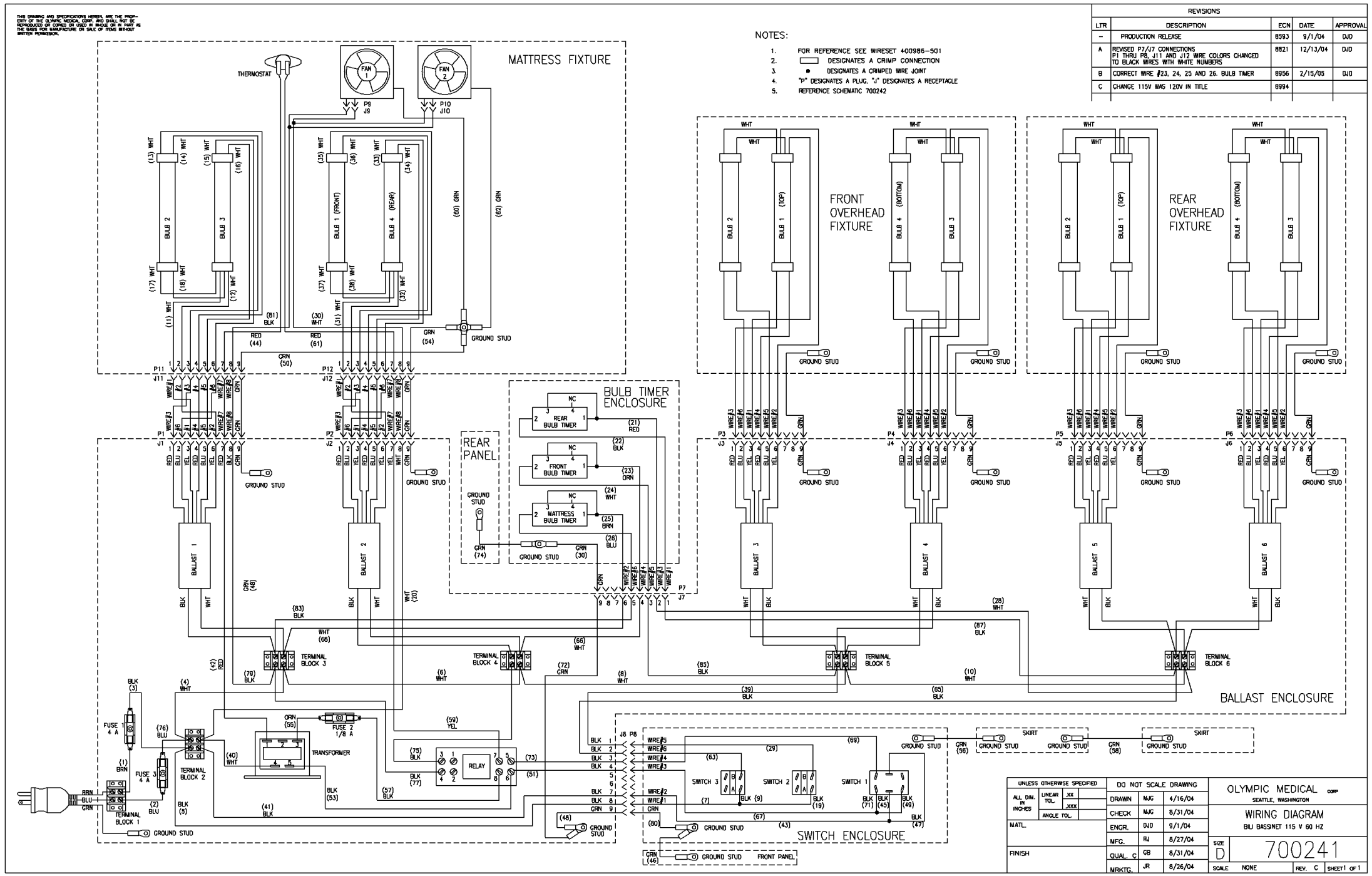

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF THE OLYMPIC MEDICAL CORP. AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
NOTES:
1. FOR REFERENCE SEE WIRESET 400986-501
2. DESIGNATES A CRIMP CONNECTION
3. DESIGNATES A CRIMPED WIRE JOINT
4. "P" DESIGNATES A PLUG, "J" DESIGNATES A RECEPTACLE
5. REFERENCE SCHEMATIC 700242
REVISIONS
LTR | DESCRIPTION | ECN | DATE | APPROVAL
– | PRODUCTION RELEASE | 8593 | 9/1/04 | DJD
A | REVISED P7/J7 CONNECTIONS P1 THRU P6, J11 AND J12 WIRE COLORS CHANGED TO BLACK WIRES WITH WHITE NUMBERS | 8821 | 12/13/04 | DJD
B | CORRECT WIRE #23, 24, 25 AND 26. BULB TIMER | 8956 | 2/15/05 | DJD
C | CHANGE 115V WAS 120V IN TITLE | 8994
MATTRESS FIXTURE
THERMOSTAT
FAN 1
FAN 2
BULB 1 (FRONT)
BULB 2
BULB 3
BULB 4 (REAR)
GROUND STUD
FRONT OVERHEAD FIXTURE
REAR OVERHEAD FIXTURE
BULB 1 (TOP)
BULB 4 (BOTTOM)
BULB TIMER ENCLOSURE
REAR BULB TIMER
FRONT BULB TIMER
MATTRESS BULB TIMER
REAR PANEL
BALLAST 1
BALLAST 2
BALLAST 3
BALLAST 4
BALLAST 5
BALLAST 6
TERMINAL BLOCK 1
TERMINAL BLOCK 2
TERMINAL BLOCK 3
TERMINAL BLOCK 4
TERMINAL BLOCK 5
TERMINAL BLOCK 6
BALLAST ENCLOSURE
FUSE 1 4 A
FUSE 2 1/8 A
FUSE 3 4 A
TRANSFORMER
RELAY
SWITCH 1
SWITCH 2
SWITCH 3
SKIRT
SWITCH ENCLOSURE
FRONT PANEL
UNLESS OTHERWISE SPECIFIED
ALL DIM. IN INCHES
LINEAR TOL. .XX .XXX
ANGLE TOL.
MATL.
FINISH
DO NOT SCALE DRAWING
DRAWN MJC 4/16/04
CHECK MJC 8/31/04
ENGR. DJD 9/1/04
MFG. RJ 8/27/04
QUAL. C GB 8/31/04
MRKTG. JR 8/26/04
OLYMPIC MEDICAL CORP
SEATTLE, WASHINGTON
WIRING DIAGRAM
BILI BASSINET 115 V 60 HZ
SIZE D
700241
SCALE NONE
REV. C
SHEET 1 OF 1

Figure A.2 Bili-Bassinet — Schematic, Drawing No. 700242, Rev. -